Miniature Non-Intrusive Multi-Parameter Oronasal Respiratory Health Monitor, Phase I

Completed Technology Project (2007 - 2007)

Project Introduction

Redondo Optics Inc. (ROI), proposes to develop, demonstrate, and deliver to NASA an intrinsically safe, miniature, low power, autonomous, and self-calibrated, respiratory health monitor (ResHealth

TM

) system for monitoring of the oronasal activity associated with respiratory activity during extravehicular activity (EVA) sorties on Lunar surface exploration. In Phase I of this program, ROI will conclusively demonstrate the concept of the ResHealth

TM

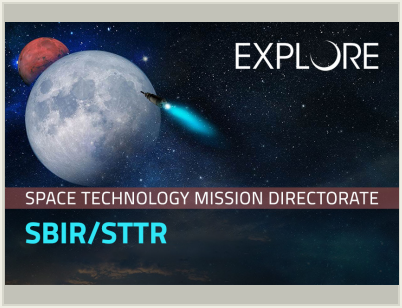
monitoring device by extensively testing a conceptual prototype of a multi-sensor array microchip and optoelectronic sensor readout unit capable of detecting, analyzing, and separating vital respiratory activity signatures associated with inspiratory and expiratory air flow. In Phase II, ROI will integrate the ResHealth

TM

monitoring device into a field deployable autonomous unit and installed and qualified on a spacesuit PLSS system at a selected NASA test site and delivered to NASA for performance validation. The ResHealth

TM

system's wireless communication mode offers true Tele-medicine capabilities to communicate remotely its sensor status and alarm condition to the crewmember EMU computer control and communications system, to other close proximity crewmembers, lunar habitat stations, and to flight doctors in the Mission Control Center. No other available commercial device on the market today offers such capabilities at an affordable cost.



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Johnson Space Center (JSC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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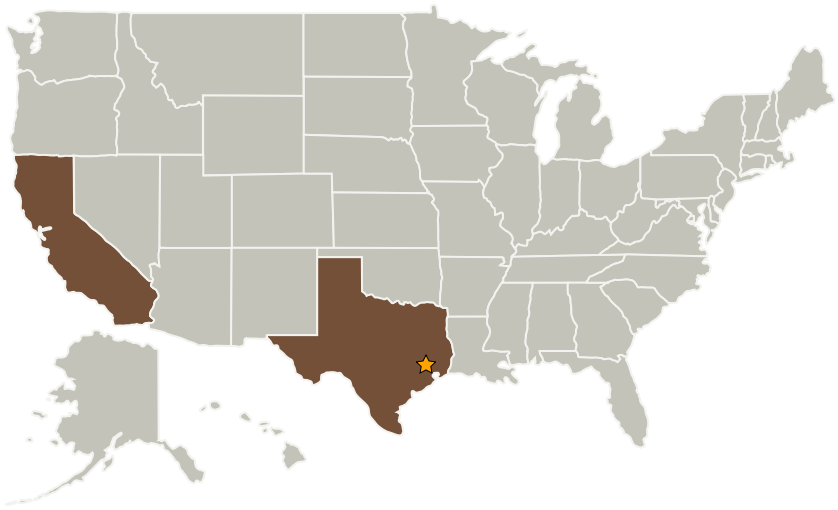
Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★Johnson Space Center(JSC)	Lead Organization	NASA Center	Houston, Texas
Redondo Optics, Inc.	Supporting Organization	Industry Small Disadvantaged Business (SDB)	Redondo Beach, California

Primary U.S. Work Locations	
California	Texas

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX06 Human Health, Life Support, and Habitation Systems
  - TX06.3 Human Health and Performance
    - TX06.3.4 Contact-less / Wearable Human Health and Performance Monitoring